

REMARKS

The examiner objected to the title. The title has been amended. While the first title was believed to be descriptive, the amended title includes a specific feature recited in each of the independent claims. The feature is believed to meet the examiner's requirement regarding descriptiveness of the title.

Claims 1, 4-8, 15-17 and 24-40 stand rejected under § 102 in view of published application 2002/0167001 ("the '001 application"). The rejection is respectfully traversed.

To assert the rejection, the examiner does not use the ordinary meaning of the claim terms and/or the terms used in the reference. Instead, the examiner asserts the rejection by noting that "the at least partially transparent electron source layer could also be interpreted as (14) and the thin metal layer could be interpreted as (10)." This is inconsistent with the ordinary meaning of the terms as used in the claims and in the reference. The intentional misapplication of claim terms and reference terms results in inconsistencies in the rejection, showing that the rejection should also not be maintained because the application of the reference to the claims terms is inconsistent between rejected independent and dependent claims. While the rejection is improper with respect to all of the claims, exemplary claims and independent claims will be discussed individually below to show the rejection should be withdrawn.

Regarding claim 1, the rejection depends upon labeling the cathode layer 14 of the '001 application as the electron source layer. The first problem with this is

that the ‘001 application explicitly identifies an electron source 10. The description of the electron source, its materials and its functions correspond generally to the electron source layer in claim 1. The claimed thin metal layer, on the other hand, corresponds to the cathode layer 14 of the ‘001 application. Any artisan reading the description, for example, in paragraph 19 of the ‘001 application and the description of the device shown in Fig. 1 of the instant application, would immediately recognize the correspondence between the claimed electron source layer and the electron source 10 of the ‘001 application. An artisan would also immediately recognize the correspondence between the claimed thin metal layer and the cathode layer 14 of the ‘001 application. Based upon the description of the functions in paragraph 19 of the ‘001 application, the arrangement of the layers, and the explicit names that have ordinary meaning in the art, no artisan would consider the cathode layer 14 to be an electron supply layer. Paragraph 19 of the ‘001 application explicitly states that “electrons tunnel from the substrate 10 (an electron supply) to the cathode layer 14.” Both the name and the function of the electron source 10 clearly indicate that it corresponds to the electron source layer that is claimed. The rejection cannot be maintained, however, because the ‘001 application does not disclose an “at least partially transparent electron source layer”.

Apparently recognizing that the electron source 10 in the ‘001 application is not partially transparent in accordance with the claim, the examiner turned to the cathode layer 14 of the ‘001 application. As discussed in the previous paragraph, this is improper. However, paragraph 19 of the ‘001 application also

establishes that the ‘001 application does not disclose a partially transparent cathode layer 14. None of the materials listed in paragraph 19, namely, “platinum, gold, molybdenum, iridium, ruthenium, tantalum, chromium, or other refractive metals or alloys thereof” is a disclosure of a transparent cathode layer 14. Even with the sleight of hand used in the rejection to mislabel portions of the ‘001 application, the rejection is still improper because the cathode layer 14 is not disclosed in the ‘001 application as being partially transparent.

The rejection of claim 15 is separately traversed, partially because it makes a point that the use of the ‘001 application as applied the claims is inconsistent and improper. To support the rejection of claim 15, the office action cites paragraph 19, which discloses that the cathode layer 14 is a thin film that may be platinum. However, to reject claim 1, it is necessary for the office action to interpret the cathode layer 14 as corresponding to the electron supply layer and the substrate 10 as corresponding to the claimed thin metal layer. The explanation of the rejection of claim 15 is therefore inconsistent with the explanation of the rejection of claim 1. The rejection of claim 1 relies upon calling the substrate 10 of the ‘001 application a thin metal layer, but nowhere is it disclosed that the substrate 10 of the ‘001 application is platinum.

Regarding claim 6, the analysis with respect to claim 1 applies. There is no partially transparent electron source layer in the ‘001 application. The cathode layer 14 in the ‘001 application is not an electron source layer, nor is the cathode layer 14 in the ‘001 application disclosed as transparent.

Regarding claim 36, the method for making establishes particular steps. The tunneling layer is formed on the transparent electron source layer and then the thin metal layer is formed on the tunneling layer. This further shows that the ‘001 application and the particular interpretation offered in the office action cannot be properly applied to claim 36. The ‘001 application describes the formation process in Figs. 11A-11L. It begins with a substrate 10, and then layers are formed upon the substrate. This makes clear that the substrate 10 corresponds to the electron source layer of claim 36. The tunneling layer and the cathode layer are subsequently formed in the process of Figs. 11A-11L. This formation process further makes clear that it is improper to label the cathode layer 14 in the ‘001 application as corresponding to the claim 36 electron source layer.

Regarding claims 37 and 38, applicants find no discussion of these claims in the rejection. The rejection regarding the ‘001 application has therefore not been properly established with respect to claims 37 and 38. Regarding claim 37, there is no partially transparent electron source layer in the ‘001 application. Also, the step of illuminating a surface of a tunneling layer through the electron source layer is not disclosed anywhere in the ‘001 application. Regarding claim 38, there is no partially transparent electron source layer in the ‘001 application. Additionally, there are no means for illuminating a surface of the tunneling layer through the electron source layer as is required by claim 38.

Claims 1 and 11-14 stand rejected under § 102 over published application 2003/0160557 (“the ‘557 application”). The rejection is respectfully

traversed.

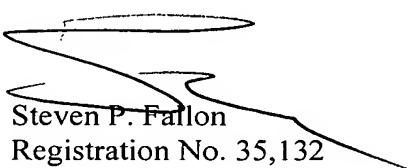
A similar tactic was used in this rejection as it was used in the rejection of claim 1 based upon the '001 application. The '557 application uses the same terminology as the '001 application and the instant application. The '557 application clearly identifies item no. 10 as the electron source layer. In paragraph 41 it describes the functions of the electron source layer, and it is inappropriate and improper based upon the ordinary meaning of the claim terms and the meaning that would be accorded the terms in the '557 application to attempt to apply the cathode layer 14 in the '557 application to the claimed electron source layer. Nowhere is the cathode layer 14 described in the '557 application as providing electrons that then tunnel through the tunneling layer 20.

For all of the above reasons, applicants respectfully request reconsideration and allowance of all pending claims. The examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

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